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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/616,408	07/14/2000	David N Horn	Horn 10-2-3	6913

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EXAMINER

NGUYEN, ALAN V

ART UNIT PAPER NUMBER

2662

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/616,408	Applicant(s) HORN ET AL.	
	Examiner Alan Nguyen	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-12, 14, 15, 17 and 18 is/are allowed.
- 6) ☒ Claim(s) 1-3, 8, 9, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 5-7 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Vanhoof et al (US 6,298,049), herein Vanhoof.

Regarding **claim 1** Vanhoof shows in Figure 2 a grant generator apparatus with a first and second grant table, T1 and T2. As disclosed on column 6, lines 12-16, both grant tables are used as memories that are filled with terminal identifiers. The terminal identifier corresponds to a grant and each is assigned a portion of the overall upstream capacity for upstream transmission (***storing grants corresponding to a first-size and second-size of said available transmission channel bandwidth***). The grant tables are coupled to a filling device (***grant distributor***) that calculates the order of grants and distributes them into the tables in order to obtain a fair share of upstream capacity of the common link over different network terminals (***distributing grants in a predetermined pattern***), as explained on column 6, lines 12-16. A grant generator GRANT (***grant generator***) is also shown in figure 2. In figure 2 and column 5, lines 44-47 of Vanhoof shows a filling device (***clock divider***) that has outputs coupled to the write inputs of the grant table memories T1 and T2. FILL device provides a number of grant selections to the first grant table and provides a second number of grant selections to the second

Art Unit: 2662

grant table as shown in column 5 lines 33-67 and column 6 lines 45-62. **(providing first number of grant selections to first table and at least a second number of grant selections to other table, first and second selections corresponding to first and second number of grants).**

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 3, 8, 9, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vanhoof in view of Buckland et al (US 6,064,652) hereafter Buckland.

Regarding **claims 2, 3, and 9** Vanhoof discloses where the network is an ATM network in column 5 lines 20-25.

Vanhoof fails to disclose where the network is an ATM passive optical network .

Buckland shows an ATM passive optical network in figure 1 of Buckland, and further explains on column 4, lines 60-61 of Buckland that the system provides for the transport of ATM cells **(PON is an ATM-PON)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Vanhoof's apparatus to utilize the grant generation scheme into a passive optical network, as taught by Buckland. The motivation is a trend

Art Unit: 2662

towards the new development and increasing popularity in Fiber-to-the Curb Technology FTTC, where homes are connected to the local central office via optical fibers running to the Optical Network Unit, as explained by Bucklnad on column 2 lines 5-20.

Regarding **claim 8** Vanhoof further fails to disclose the use of dynamic bandwidth management.

Buckland discloses in column 2, lines 27-32 of that grants are allocated in a manner to ensure Quality of Service (QoS) for each connection. The QoS defines basic parameters such as cell loss rate and average delay. Buckland further discloses a method on column 8, lines 1-8 that utilizes an algorithm that in the event of a connection failure, an appropriate number of grant table entries corresponding to that connection are removed (***dynamic bandwidth management control logic operable to alter slots in one or more grant tables based on receipt of a triggering parameter***).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Vanhoof's apparatus to utilize dynamic bandwidth management and quality of service, as taught by Buckland. The motivation is a higher performing and more accurate system that takes into account factors such as cell loss rate and latency as explained by Buckland.

Regarding **claim 19** Vanhoof discloses an ATM system that does grant generation, utilizing multiple grant tables, as shown in figure 2, elements T1 and T2. As

Art Unit: 2662

disclosed on column 6, lines 12-16, both grant tables are used as memories that are filled with terminal identifiers in a calculated order done to obtain a fair share of upstream capacity of the common link over different network terminals (**storing grants corresponding to a first-size and second-size of said available transmission channel bandwidth**)

The grant tables are coupled to a filling device that distributes grants in a predetermined pattern, as explained on column 6 lines 12-16. Vanhoof also discloses on column 5, lines 2-6 that the network terminals are informed about the assignment of upstream timeslots via grant messages that are downstream broadcasted by the main station (**distributing grants downstream to ONT units coupled to PON**). Vanhoof also discloses column 6, lines 45-54 how grants are scanned from grants tables 1 and then subsequently grant table 2 (**grants being distributed over a complete grant cycle**).

In figure 2 and column 5, lines 44-47 of Vanhoof shows a filling device (**clock divider**) that has outputs coupled to the write inputs of the grant table memories T1 and T2. FILL device provides a number of grant selections to the first grant table and provides a second number of grant selections to the second grant table as shown in column 5 lines 33-67 and column 6 lines 45-62. (**providing first number of grant selections to first table and at least a second number of grant selections to other table, first and second selections corresponding to first and second number of grants**).

Art Unit: 2662

Vanhoof fails to expressly disclose where the generation of bandwidth grants are done in a passive optical network.

Buckland discloses in figure 1 and column 4 lines 30-40 the apparatus as a passive optical network, where the signal is fed downstream to the optical network unit ONU 110.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Vanhoof's apparatus to utilize the grant generation scheme into a passive optical network, as taught by Buckland. The motivation is a trend towards the new development and increasing popularity in Fiber-to-the Curb Technology FTTC, where homes are connected to the local central office via optical fibers running to the Optical Network Unit, as explained by Buckland on column 2 lines 5-20.

In regard to **claim 20**, with the features in parent claim 19 addressed above, Buckland further discloses a method on column 8, lines 1-8 that utilizes an algorithm that in the event of a connection failure, an appropriate number of grant table entries corresponding to that connection are removed. This shows that the table is updated ***(grant table is updated upon a change in end user connections at ATM-PON)***.

Allowable Subject Matter

5. **Claims 5-7 and 22** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the

Art Unit: 2662

limitations of the base claim and any intervening claims. Regarding **claim 22** the cited references taken individually or in combination fails to particularly disclose the combination of where the first grant table, second grant table, and grant distributor are recursively coupled to produce finer granularity grants at subsequent levels.

Claims 10-12, 14, 15, 17, and 18 are allowed. Regarding **claim 10** the cited references taken individually or in combination fails to particularly disclose the combination of where the first grant table, second grant table, and grant distributor are recursively coupled to produce finer granularity grants at subsequent levels.

Response to Arguments

6. Applicant's arguments filed 8 March 2004, with respect to **claims 1 and 19**, have been fully considered but they are not persuasive. In response to the Office action, Applicant argues that the prior art of Vanhoof et al (US 6,298,049) fails to disclose a clock divider having at least two different output frequencies that triggers the grants from each of the linked grant tables in order to produce the desired output pattern. Regarding the limitations of claims 1 and 19, the FILL device discloses all the functions of the clock divider. FILL device accepts a higher rate input and outputs 2 rates that are a division of that higher rate. FILL device provides a number of grant selections to the first grant table and provides a second number of grant selections to the second grant table, as shown in column 5 lines 33-67 and column 6 lines 45-62 of Vanhoof. For the reasons above the examiner respectfully disagrees. In the following view, in reading the limitation in claim 1, the clock divider does not show structure; it only shows the

Art Unit: 2662

function. The FILL device of Vanhoof's embodiment does show that it carries out the same function and end result. Applicant needs to further add structure to the clock divider for allowability of the claim. Furthermore, Applicant argues that the invention of the claim is a simpler implementation than Vanhoof's embodiment. The limitations and language of the claim does not include that aspect of the invention. It is concluded that Vanhoof continues to anticipate the claimed subject matter. Therefore the claims 1 and 19 are not allowed over the prior art.

7. Applicant's arguments, with respect to **claims 10 and 22** have been fully considered and are persuasive. The rejection of claims 10-12, 14, 15, 17, 18, and 22 has been withdrawn.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2662

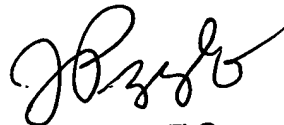
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Nguyen whose telephone number is 703-305-0369. The examiner can normally be reached on 9am-6pm ET, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AVN
June 10, 2004


JOHN PEZZLO
PRIMARY EXAMINER